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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,249	05/04/2006	Kazuo Sato	SATO3032	6688
23364 7590 01/10/2008 BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			EXAMINER AL HASHIMI, SARAH	
			ART UNIT 2853	PAPER NUMBER
			MAIL DATE 01/10/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,249

Applicant(s)

SATO, KAZUO

Examiner

Sarah Al-Hashimi

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,7-12 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1&3** are rejected under 35 U.S.C. 102(b) as being anticipated by Deppe (US 4,937,766).

Deppe teaches:

Claim 1: acquiring means that acquires, as information on the dot, at least two-dimensional position information of an exposed section of the workpiece, and density information of the dot (abs "At least one of the sensors is directed initially towards the object for acquiring position data on a particular point of the object such as a point of intersection of two contrast lines"); coordinate setting means that calculates, for each dot according to the density information, dot depth information showing the distance from the surface of the workpiece to the dot in the thickness direction of the workpiece, and sets three-dimensional coordinates for each dot based on a position specified by the dot depth information and the two-dimensional position information acquired by said acquiring means (col 2 lines 37-40 "one may initiate the measurement by prepositioning the object into a most favorable position for purposes of defining and acquiring characteristics

and measuring points" and col 1 lines 67-8 and col 2 lines 1&2 "the angular position of the sensors in that instance have in relation to each other is used to acquire positional data of the characteristic point in a three-dimensional coordinate space"); and laser marking means that performs marking with the three-dimensional coordinates as a laser beam focal point (col 2 lines 18-23 "it is suggested to provide a characteristic point on the object with an external marker to serve as a reference. This does not mean that it has to be a permanent marking but, e.g. the marking may be done through a highly concentrated light beam as a laser beam being projected onto the object").

Claim 3: characterized in that the laser marking is performed for at least one dot in the area (col 2 lines 26-28 "one can cover the entire surface of the object with characteristic points for the highest possible resolution").

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Deppe (US 4,937,766) in view of Tait (US 2003/0219577).

Deppe does not teach but **Tait** teaches:

Claim 4: the workpiece is made of a light transmitting resin material, and comprises a core material, which is a colored material having light reflectivity, on

the rear surface of the workpiece (para 20 “the microlayers are sufficiently thin so that light reflected at a plurality of the interfaces undergoes constructive or destructive interference in order to give the film body the desired reflective or transmissive properties” and para 25 “colored mirror films”).

Claim 5: the workpiece is made of a light transmitting resin material, and comprises a core material, which is a colored material having light reflectivity, on the rear surface of the workpiece, and another workpiece is in contact with a surface opposite to the contact surface between the core material and the workpiece (para 20 “the microlayers are sufficiently thin so that light reflected at a plurality of the interfaces undergoes constructive or destructive interference in order to give the film body the desired reflective or transmissive properties” and para 25 “colored mirror films”—the microlayers make up the different workpieces).

Claim 6: the core material is configured by building up two types of resin materials (para 51 “curable resins component (mixture of epoxy and polyol)”).

Therefore it would have been obvious to a person having ordinary skill in the art to modify Deppe to incorporate a workpiece formed by a light transmitting resin material, and a core material which is a colored material having light reflectivity, and is built up on a rear surface of said workpiece as taught by Tait because the material can absorb the laser energy in order to formulate the workpiece without damage and the laser marking is more lucid when observing the interaction of the laser with the coloring.

Allowable Subject Matter

5. Claims **2,7-12** are allowed.

6. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 2,10-12 is the inclusion of the limitation of an object to be marked that includes a marking information setting means that calculates, for each dot according to the density information, dot depth information showing the distance from the surface of the workpiece to the dot in the thickness direction of the workpiece, and dot diameter information showing the diameter of the dot, sets three-dimensional coordinates for each dot based on a position specified by the dot depth information and the two-dimensional position information acquired by said acquiring means, and sets the dot diameter information for each dot in the three-dimensional coordinates, thereby forming marking information for each dot. It is this limitation found in claim 2, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 7 is the inclusion of the limitation of an object to be marked that includes a workpiece formed by a light transmitting resin material, and a core material which is a colored material having light reflectivity, and is built up on a rear surface of said workpiece, characterized in that marking is carried out such that a plurality of dots different in the distance from the surface of said workpiece in the thickness direction are formed in said workpiece, and the difference in the depth among the plurality of dots causes the dots appear different in the density . It is this limitation found in claim 7, as it is

claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 8 is the inclusion of the limitation of an object to be marked that includes a workpiece characterized in that marking is carried out such that a plurality of dots different respectively in the distance from the surface of said workpiece in the thickness direction and the diameter are formed in said workpiece, and the differences in the depth and the diameter of each dot cause the each unit area in which the dots are formed appears different in the density. It is this limitation found in claim 8, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 9 is the inclusion of the limitation of a laser marking method that includes a marking information setting step of setting the dot diameter information acquired by said dot information acquiring step for each dot in the three-dimensional coordinates set by said three-dimensional coordinate setting step, thereby forming marking information. It is this limitation found in claim 9, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

7. Applicant's arguments filed 10/25/2007 with respect to the rejection(s) of claim(s) 1,3-7 under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Deppe (US 4,937,766).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(US 5,293,539) discloses a marking method that includes measurements of dot density.

(US 5,389,196) discloses a method for fabricating a three dimensional workpiece involving determining pixel depth.

(US 4,961,080) discloses a laser marking method involving a three dimensional object.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Al-Hashimi whose telephone number is 571 272 7159. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272 2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either PAIR or Public PAIR. Status information for unpublished applications is available through PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SA/


AN H. DO
PRIMARY EXAMINER
01/07/2008